

Bioinformatics Self-help Tools 24-7

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Introduction

Bioinformatics is a field where medicine, biology, engineering, and computer science merge to lead to the creation of new tools that aid in scientific discovery. As the field grows, so too does the need for bioinformatics support. Increasingly, libraries are being called on to provide this support, but the knowledge, time and skill required can often challenge their resources. New trends in library services, such as video tutorials, can help libraries meet needs of users and offer users a convenient, self-directed learning experience. Sharing skills of librarians at separate institutions can help libraries make the most of their skills and knowledge.

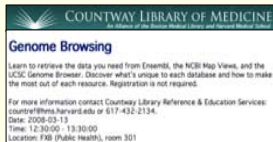
To better serve the research communities at Harvard and MIT, librarians from the Countway Library of Medicine (Harvard) and MIT's Engineering and Science Libraries have produced a series of video tutorials highlighting key resources. Countway has an ongoing program of bioinformatics support that includes training in the use of NCBI tools such as BLAST and MapViewer as well as other resources including the Ensembl and UCSC genome browsers. MIT Libraries has an ongoing program of video tutorials for traditional bibliographic instruction that includes a large collection of tutorials covering OPAC use, finding full text articles, and copyright and scholarly communication issues.

Tutorials created through this collaboration between Countway Library of Medicine and MIT Engineering and Science Libraries are referred to as Bioinformatics Tutorial Series, BITS.

Project Goals

- Combine skills and efforts of both institutions to serve a common interdisciplinary community
- Enhance the collaborative relationship between the Countway Library and MIT Engineering and Science Library
- Build and exchange skills
- Increase the level of outreach to the Harvard-MIT Health Science and Technology (HST) community

Convert In-person Instructions To Video Tutorials



In-person instruction offered by Countway Library of Medicine



Video tutorials offered by MIT Engineering and Science Libraries

User Community

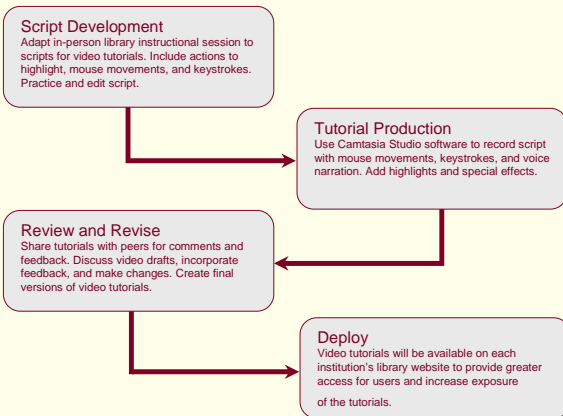
The initial impetus for the creating BITS was to provide an innovative service to the joint Harvard-MIT Division of Health Sciences & Technology (HST). HST brings together the Massachusetts Institute of Technology (MIT), Harvard Medical School (HMS), Harvard University, and area research institutions. HST offers graduate degree programs in medical sciences, medical engineering, clinical investigation, radiological sciences, and more.

Besides the HST community, the tutorials are available to the greater Harvard and MIT communities as well as the general public. Since NCBI has decreased funding for education and training, this resource will also be valuable for academic libraries to pass onto their users.



Methods

Creating BITS was a multi-step process for the collaborative team. Librarians at the Countway Library prepared tutorial scripts. Video production was completed by librarians at MIT. Colleagues at each institution provided comments and feedback. Team members incorporated comments and feedback, edited tutorials, and the distribution of BITS installments on library webpages.



Resources



Resources highlighted in the series were chosen based on the needs of our user group, popularity of the tool, experience of collaborative team with the resource, and availability of content from in-person instructional sessions.

Video Tutorial Examples



UCSC Genome Browser: Locating Intron-Exon Boundaries
"Identifying splice sites in transcripts is a fundamental task in many kinds of analysis. In this tutorial you will learn two rapid methods of identifying intron-exon boundaries in the UCSC Genome Browser."



Do I Need to BLAST? The Use of BLAST Link
"Each of the linked numbers in the list leads to a different database function. Clicking on any of the numbers in the score column will generate a BLAST 2 Sequences comparison of that protein with your original query sequence in a new tab or window."



UCSC Genome Browser: Getting DNA Sequence
"We're now looking at a 6000 basepair region centered on the EDN1 coding sequences. We are now ready to retrieve genomic DNA sequence for this location. Confirm that you're in the EDN1 region of chromosome 6."

Lesson Learned

- Deriving scripts from in-person instructional sessions requires the development of precise language and the addition of carefully planned scenes, on-screen motions, and effects. Written scripts need to be vetted before recording.
- Recording quality video demands patience, quiet space, and uninterrupted time. Several takes are often required for each segment of each video.
- For unity among tutorials and better project management, plan tutorials ahead of time in thematic groups.
- Have a comment and feedback system in place prior to the start of project.